CHAPTER 3.0
ENVIRONMENTAL ANALYSIS

3.0 ENVIRONMENTAL ANALYSIS

The purpose of Chapter 3.0 of this Addendum (No. 4) to Final EIR 95-01 is to provide an analysis of the potential environmental consequences that are anticipated to occur as a result of implementation of the proposed Marblehead Coastal Project – Public Parks & Trails Master Plan. Specifically, the analysis contained in this chapter includes a discussion of the impacts associated with the parks' amenities packages and any impacts that result from them, as described in Chapter 2.0, *Project Description*.

3.1 Land Use and Related Planning

The locations of all parks and trails proposed in the Master Plan were included in the August 2003 Addendum to Final EIR 95-01 (Addendum No. 3), which was deemed consistent with the San Clemente General Plan and the Marblehead Coastal Specific Plan. In essence, the Master Plan represents a refinement of the parks and trails facilities, detailing the proposed parks' and trails' amenities packages. No land use changes are proposed to the remaining TTM components (e.g., residential, commercial, bridges, Avenida Vista Hermosa interchange, etc.) (refer to Table 2-1, *Comparison of PPTMP to Amended TTM #8817).* More specifically, the Master Plan slightly reduces turf areas at Bluff and Pico Parks, thus, providing additional coastal sage scrub habitat. Rights-of-way are also realigned at the Trail Head and Passive Parks providing additional turf areas.

As described in Chapter 2.0, *Project Description*, three lighted soccer fields and a lighted basketball court are proposed at the Sports Park. Implementation of these facilities would result in the potential for spillover lighting effects on adjacent residential uses located to the west and for motorists traveling the Avenida Vista Hermosa on- and off-ramps located to the north. Although new sources of lighting would result in a change in the nighttime character of the area, the lighting would be required to comply with stringent criteria established by the City to ensure that spillage and glare do not impact residents to the west or motorists to the north. Analysis has concluded that lighting design features, compliance with the City of San Clemente Municipal Code and applicable criteria would ensure that no significant lighting impacts would occur (refer to Section 3.11, *Aesthetics*). It is noted that although impacts are concluded as less than significant, Condition No. 12 (Resolution No. 03-75) was placed on the Sports Park specifying that "no athletic field lighting is allowed at the Sports Park on Lots KK-NN unless a Conditional Use Permit is approved by the City." Thus, lighting for the athletic fields at the Sports Parks is subject to review and approval by the City of San Clemente Planning Commission through the Conditional Use Permit (CUP) process (CUP 03-2107). Review of the field lighting aspect of the Master Plan through the CUP process ensures that potential impacts are further minimized in this regard.

All park buildings and shade structures would be designed to meet Spanish Colonial Revival architecture and would be processed through the Community Development Department for Zoning Administrator Approval of a Minor Architectural Permit (MAP 03-209).

Overall, the proposed Master Plan does not materially affect the land use plan adopted for the site. The proposed park amenities would not adversely affect land use compatibility, or adopted

General Plan goals, policies, or objectives. All of the potential impacts associated with the proposed project were thoroughly and adequately evaluated in Final EIR 95-01 and subsequent Addendums. No new significant impacts to land use and/or relevant planning policies and programs would occur as a result of implementation of the Parks & Trails Master Plan.

3.2 Transportation and Circulation

The Master Plan identifies refinements to the Tentative Tract Map, including the minor realignment and extension of the Sports Park/school bus and vehicular student drop-off access road and public parking, as well as City staff's proposed widening of Via Socorro Road (from 40 to 60 feet right-of-way) (refer to Exhibit 2-4, *Sports Park - Detail*). No other changes in access for the Sports Park/school access road or the TTM's circulation system are proposed with the Master Plan. Further, the Marblehead Coastal Project's forecast trip generation would not change with implementation of the proposed Master Plan. Intersections would continue to operate at acceptable Levels of Service (LOS) (i.e., LOS "D" or better). No change to conclusions rendered in Final EIR 95-01 and subsequent Addendums to the EIR for the project would result and no additional mitigation measures would be required.

3.3 Noise

As indicated in Section 3.2 of this report, the Marblehead Coastal Project's forecast trip generation would not change with implementation of the proposed Master Plan. Consequently, vehicular traffic noise impacts resulting from project implementation would be consistent with those evaluated in Final EIR 95-01, as well as subsequent Addendums. Further, noise levels from stationary sources (i.e., mechanical equipment, parking lots, landscape equipment, etc.) would also be similar. No new significant noise impacts would occur in this regard beyond those identified in the Final EIR and, further, no new mitigation measures are required. The measures prescribed in the Final EIR would mitigate both short-term (construction) and long-term (operational) noise impacts and would ensure that adequate structural attenuation and other measures are incorporated into the design of the project.

It is further noted that, the Master Plan proposes development of two active park facilities: the Sports Park and Pico Park (refer to Section 2.0, *Project Description*). Due to the proximity of the proposed parks to adjacent sensitive residential receptors (i.e., existing residents near Sports Park and to a lesser degree the future residents near Pico Park), the potential exists that activities at these facilities could expose surrounding receptors to increased noise during the active periods. More specifically, crowd noise associated with sporting events (i.e., recreational activity, athletic tournaments, games, and practices) at the Sports Park could generate impacts. However, crowd noise and athletic activities are not anticipated to exceed thresholds of significance referenced in EIR 95-01 and subsequent Addendums. It is further noted that the City of San Clemente Parks and Recreation Commission has recommended to the City Council a condition, which would prohibit the use of the Sports Park soccer fields between the hours of 10:00 p.m. and 7:00 a.m. Impacts in this regard are concluded as less than significant.

3.4 Air Quality

Implementation of the proposed Master Plan would not change short- and long-term air quality impacts evaluated in Final EIR 95-01 and subsequent Addendums. Air emissions associated with the Master Plan are anticipated to be consistent with those evaluated in Final EIR 95-01 and subsequent Addendums. Air emissions associated with short-term construction activities, including site preparation, grading, and construction of new buildings, would not change as the Master Plan's proposed park and trail facilities were included in previous evaluations. Similarly, long-term operational air emissions from mobile and stationary sources would not change. Short-term construction and long-term operational impacts would still exceed several of the South Coast Air Quality Management District significance thresholds and remain significant and unavoidable, as discussed in Final EIR 95-01. Implementation of the previously approved mitigation measures would still be required to mitigate air quality impacts. These impacts would remain significant following implementation of all feasible mitigation measures, consistent with the previously approved project. No new significant air quality impacts beyond those identified in the Final EIR and subsequent Addendums are anticipated and, further, no new mitigation measures are required.

3.5 Soils and Geology

Site grading and construction associated with the proposed Master Plan would not change as the Master Plan's proposed park and trail facilities were included in previous evaluations. No new significant soils and geology impacts beyond those identified in the Final EIR and subsequent Addendums are anticipated and, further, no new mitigation measures are required.

3.6 Population and Housing

The Master Plan does not propose land use changes to the TTM's residential and commercial components. Therefore, the population and housing analysis contained in the Final EIR and subsequent Addendums adequately analyze the effects of the proposed Marblehead Coastal Project on population and employment projections. No additional significant impacts are anticipated.

3.7 Cultural/Scientific Resources

The Master Plan would not change grading and construction activities occurring on site as analyzed in Final EIR 95-01 and subsequent Addendums. Because the possibility continues to exist that buried or obscured archaeological deposits and fossil deposits may be encountered during site grading, potential impacts to both cultural and scientific resources may occur, as previously identified and analyzed. Implementation of previously approved mitigation measures would still be required to mitigate cultural/scientific resources impacts. These measures would adequately address any impacts resulting from site development. No new significant impacts beyond those identified in the Final EIR and subsequent Addendums are anticipated, and no new mitigation measures are required.

3.8 San Onofre Emergency Evacuation Plan

As indicated in Final EIR 95-01 and subsequent Addendums, there are no feasible measures by which to further reduce the already low risk of a nuclear accident or limit the number of persons in the potential exposure area. The Master Plan proposes extension and minor repositioning of the Sports Park access road. These alterations would not adversely affect any established evacuation plans or impede any designated evacuation routes. No change to conclusions rendered in Final EIR 95-01 and subsequent Addendums to the EIR for the project would occur, as a result of implementing the proposed Master Plan.

3.9 Public Services and Facilities

3.9.1 Water Facilities and Service

The Master Plan proposes refinements to the parks and trails facilities of the TTM. Water demand would not change as the Master Plan's proposed park and trail facilities were included in previous evaluations. Therefore, the analysis contained in the Final EIR and subsequent Addendums adequately analyzes the effects of the proposed Marblehead Coastal Project on water facilities and services. No additional impacts would occur in this regard.

3.9.2 Sewer Facilities and Service

The Master Plan proposes refinements to the parks and trails facilities of the TTM. The proposed sewer system was determined adequate to provide service to the Marblehead Coastal Project as analyzed under Final EIR 95-01 and subsequent Addendums to the EIR. Impacts related to sewer facilities and service would not change as the Master Plan's proposed park and trail facilities were included in previous evaluations. No additional impacts would occur in this regard.

3.9.3 Police Protection

The Master Plan proposes refinements to the parks and trails facilities of the TTM. Implementation of the proposed Master Plan would not result in the generation of additional calls for police protection services as the Master Plan's proposed park and trail facilities were included in previous evaluations. Therefore, the analysis contained in the Final EIR and subsequent Addendums to the EIR adequately analyzes the effects of the proposed Marblehead Coastal Project on police protection services. No additional significant impacts would occur in this regard.

3.9.4 Fire Protection

The Master Plan proposes refinements to the parks and trails facilities of the TTM. Implementation of the proposed Master Plan would not result in the generation of additional calls for fire protection and emergency medical service responses, or fire prevention and annual fire inspections. Therefore, the analysis contained in the Final EIR and subsequent Addendums to the EIR adequately analyzes the effects of the proposed Marblehead Coastal Project on fire protection services. Implementation of previously approved mitigation measures

would still be required to mitigate fire protection impacts. These measures would adequately address any impacts resulting from site development. No new significant impacts beyond those identified in the Final EIR and subsequent Addendums to the EIR are anticipated, and no new mitigation measures are required.

3.9.5 Solid Waste Facilities

The Master Plan proposes refinements to the parks and trails facilities of the TTM. Solid waste facilities were determined adequate to provide service to the Marblehead Coastal Project as analyzed under Final EIR 95-01 and subsequent Addendums to the EIR. Impacts related to solid waste facilities and service would not change as the Master Plan's proposed park and trail facilities were included in previous evaluations. No additional significant impacts would occur in this regard.

3.9.6 School Facilities

The Master Plan proposes refinements to the parks and trails facilities of the TTM. The Master Plan would not result in changes to any other land use components of the TTM. Implementation of the proposed Master Plan would not result in the generation of additional school-age children. Therefore, the analysis contained in the Final EIR and subsequent Addendums to the EIR adequately analyzes the effects of the proposed Marblehead Coastal Project on school facilities. Implementation of previously approved mitigation measures would still be required to mitigate school facilities impacts. These measures would adequately address any impacts resulting from site development. No new significant impacts beyond those identified in the Final EIR and subsequent Addendums are anticipated, and no new mitigation measures are required.

3.10 Hydrology and Flood Control

Implementation of the proposed Master Plan would not significantly change stormwater flows or flood control protection for the Marblehead Coastal Project as the Master Plan's proposed park and trail facilities were included in previous evaluations. Therefore, the analysis contained in the Final EIR and subsequent Addendums to the EIR adequately analyzes the effects of the proposed Marblehead Coastal Project on hydrology and flood control. No additional significant impacts would occur in this regard.

3.11 Aesthetics

Implementation of the Master Plan would result in the installation of a variety of lighting types. Traditional building mounted lighting at the restroom/concession building, parking lot lighting and sport lighting at the three soccer fields and one basketball court are proposed at the Sports Park Facility. In addition, traditional building mounted lighting at the bathroom building, parking lot lighting and sport lighting at the basketball court are proposed at Pico Park. All lighting would be the minimum required to accommodate safety and security while minimizing impacts on surrounding residential areas as analyzed in Final EIR 95-01 and subsequent Addendums to the EIR.

Lighting for the three soccer fields at the Sports Park would consist of a total of 12 poles located along the perimeters of the three soccer fields as illustrated on Exhibit 2-4, *Sports Park – Detail,* and Exhibit 3-1, *Sports Park – Via Socorro Street Section*. The sport lighting would be mounted on 70-foot high poles and positioned to shine downward across the soccer fields at an average of 30 maintained[1] footcandles. Lighting for the basketball courts proposed at the Sports Park and Pico Park would each consist of four 24-foot high poles, located as illustrated on Exhibit 2-4, *Sports Park - Detail*, and Exhibit 2-5, *Pico Park – Detail*. The lighting at the basketball courts would include one fixture mounted on each pole, positioned to shine toward the basketball court at an average of 20 maintained footcandles.

Areas to the north and west of the Sports Park (i.e., I-5 Freeway and residential uses) are urbanized and contain various sources of light and glare. More specifically, a total of three residential streetlights are located on Via Socorro along the extent of the Sports Park site. The Sport Park site, however, is currently vacant and no light or glare is presently generated on the site. Sport lighting for the soccer fields and basketball court and security lighting for the parking lots and related facilities would be introduced into the Sport Park site where none currently exists. Although the new source of lighting would result in a change in the nighttime character of the area, the lighting must comply with very stringent criteria established by the City to ensure that spillage and glare do not impact either the adjacent residential properties or motorists on the Avenida Vista Hermosa on- and off-ramps located to the north. A technical lighting study was prepared by Musco Lighting (December 2003) to measure the effects of the sport lighting of the soccer fields (refer to Appendix 4.1, *Musco Lighting Study*). The study quantifies the amount of light surrounding the soccer fields during initial lighting (maximum intensity), assuming all lighting fixtures are operating at the same time. Horizontal measurements were taken to estimate lighting and maximum measurements were also taken, which quantify the amount of glare at adjacent property lines. Based on this analysis, it was determined that the lighting can be designed to ensure that no significant lighting impacts would occur as a result of project implementation. The findings of the Musco Lighting analysis are summarized below.

By definition, light pollution is the upward and outward distribution of light. This light is emitted either directly from fixtures or from reflection off the ground or other surfaces. Light sources are labeled with an output rating in lumens. The lumen is the most common measure of light output. As lamps and fixtures age, become weathered and deteriorate, their lumen output decreases. Illuminance, or the amount of light being transmitted upon a certain area, is measured in terms of footcandles (which is equal to one lumen per square foot). The higher the footcandle level, the brighter the illuminated area will be.

The outcome of direct light shining from a fixture making it difficult to see or causing discomfort is referred to as glare. Human response to glare is dependent upon the sources brightness, contrast between the source and the surrounding environment, size of the source, and the position of the light source. Glare is a particular problem for motorists traveling in proximity to the light source, although glare may be visible from nearby or distant areas. Glare is commonly considered in terms of candlepower, expressed in candela (cd). Candlepower is the luminous

[1] Maintained illumination is the light output of a luminaire when it is operated in actual field conditions that have reduced the light output (i.e., ballast efficiency and operating conditions, voltage factor, ambient temperature, lamp tilt factor, lamp lumen depreciation factor, and luminaire dirt depreciation factor) as compared to the light output predicted from laboratory test data.

Marblehead Coastal

SPORT PARK - VIA SOCORRO STREET SECTION

127'-0"±

25'-0"-40'-0" VARIES (31' SHOWN)
FRONT SETBACK

R.O.W.

10'-0"
EXISTING

4'-0"
SW

6'-0"
LS

STREET CURB

FUTURE 40'-0" PAVED
VIA SOCORRO STREET

EDGE OF EXISTING PAVEMENT

EXISTING STREET LIGHT

EXISTING 30' PAVED

10' FUTURE

FUTURE 60' R.O.W.

32'-0" MIN. LANDSCAPE (LS) BUFFER

STREET CURB

10'-0"
FUTURE

6'-0"
LS

4'-0"
SW

R.O.W.

22'-0"

TOP OF SLOPE

175'-0"
(DISTANCE TO NEXT LIGHT)

70' HIGH FIELD LIGHT POLE

LANDSCAPE BUFFER WITH TREES, SHRUBS AND GROUND COVERS (ESTIMATED SIZE, HEIGHT X WIDTH: 10'-12' X 4'-5' @ INSTALLATION OF SOCCER FIELD. 20'-25' X 12'-15' @ 5 YEARS GROWTH. GROWTH RATES CAN VARY WIDELY DEPENDING ON ACTUAL SITE CONDITIONS AND MAINTENANCE)

6' HIGH DECORATIVE FENCE

2
1

VARIES
8'-12'
(9' SHOWN)

VARIES
0'-18'
6'
SHOWN

EXISTING RESIDENCES (TYP.)

EXISTING ROADWAY
(40' R.O.W)

FUTURE TREE HEIGHT
(APPROXIMATELY 5 YRS)

24" BOX TREE SIZE AT INSTALLATION

FUTURE SIDEWALK

SECTION A-A

0 5 10 20 Feet

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December 8, 2003

Exhibit 3-1

intensity emitting from a light source in a particular direction. Measurement of candlepower is typically done with an illuminance meter (light meter) provided the distance from the glare source to the meter is known.

Maximum illuminance readings provide an understanding of the quantity of glare resulting from spill light. Maximum illuminance is measured in a nearly vertical plane, with the lens of the meter directly facing toward each light bank. When taking field measurements at any particular location, the lens of the meter is pointed directly toward each light bank and panned across all the light banks until the highest illuminance reading is found.

Spill light is the light that trespasses or "spills" off the intended area and illuminates adjacent properties, and is generally considered undesirable or unwanted. Spill light is measured in terms of illuminance. The units of measure are foot-candles (fc) and lux (lx).

Horizontal readings provide an understanding of the amount of illuminance reduction that occurs from the relatively brightly lit sports field to low illuminance levels at the neighboring property line. Horizontal illuminance is also measured in the playing field with an illuminance meter, having the lens of the meter parallel with the playing surface.

When developing a lighting design for a project where spill light may be a concern, spill light scans are commonly produced showing both horizontal illuminance (spill) and maximum illuminance (glare) at the location of concern.

The initial light level is the level of lighting that would be generated if the lights were normally just turned on. Maintained footcandles are the measurement of light generation after the lights have been burned over time (approximately 100 hours). Light levels are designed to provide maintained footcandles or 80% of the initial light level after approximately 100 hours. Uniformity, or smoothness of the light, is the measurement of horizontal footcandles from the brightest to the darkest. Generally, a greater amount of illumination is needed when faster activities are taking place since higher footcandles provide better uniformity, meaning the light is more evenly distributed throughout the area. The presence of dark spots in the field of vision, while playing soccer, for example, would result in objects appearing to move slower or faster, rather than smoothly.

According to the Musco Lighting Study, light spill surrounding the soccer fields would occur at a maximum 2.06 footcandles and an average of 0.26 footcandles of light (refer to Table 3-1, *Sports Fields Spill Light Levels,* and Exhibit 3-2, *Sports Park - Light Levels*). The maximum spill measurement for all fields (2.06 footcandles) would occur along the park's northern property boundary adjacent to the Avenida Vista Hermosa off-ramp. The maximum spill measurement along the Via Socorro western right-of-way would be 0.77 footcandles.

Glare surrounding the soccer fields would occur at a maximum 3.48 footcandles and an average of 0.68 footcandles of light (refer to Table 3-1 and Exhibit 3-2, *Sports Park - Light Levels*). The maximum glare impact for all fields (3.48 footcandles) would occur along the northern property boundary adjacent to the Avenida Vista Hermosa off-ramp. The maximum glare measurement along the Via Socorro western right-of-way would be 1.37 footcandles.

Marblehead Coastal

SPORTS PARK - LIGHT LEVELS

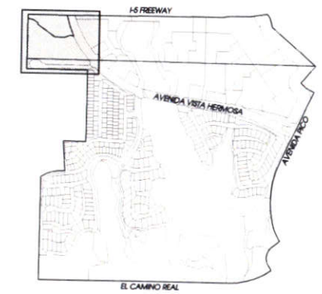
LEGEND:

1. AC PARKING LOT (85 LIGHTED SPACES, LIGHT POLE LOCATIONS TO BE PER CITY STANDARD AND DETERMINED AT FINAL DESIGN STAGE)
2. RESTROOM PER CITY STANDARD
3. 29,300 S.F. ACTIVITY AREA, INCLUDES:
   - 10,000 S.F. UNIVERSAL PLAY AREA
   - 900 S.F. RESTROOM/ STORAGE AREA
   - SHADED INDIVIDUAL PICNIC AREAS
   - SHADED GROUP PICNIC AREA
   - GROVES OF SHADE TREES
   - DRINKING FOUNTAINS
   - BIKE RACKS
4. FULL COURT BASKETBALL - LIGHTED
5. 165' X 300' TURF SOCCER FIELD - LIGHTED (AYSO MINIMUM TOURNAMENT STANDARD 150'X300')
6. 8' CONCRETE SIDEWALK
7. 8' MEANDERING CONCRETE SIDEWALK
8. 6' CONCRETE SIDEWALK
9. 6' WIDTH CONCRETE STAIRWAY
10. 16' HIGH MESH FENCE
11. 6' HIGH MESH FENCE
12. 4' HIGH MESH FENCE
13. INDIVIDUAL PICNIC TABLE AND SHADE STRUCTURE PER CITY STANDARD
14. GROUP PICNIC TABLE AND SHADE STRUCTURE PER CITY STANDARD
15. LIGHTED ENTRY MONUMENT
17. ACCESSIBLE DRINKING FOUNTAIN/ WASTE RECEPTACLE
18. EXISTING UTILITY EASEMENT
19. NATIVE TREES FROM APPROVED PLANT PALETTE
20. MAINTENANCE VEHICLE ACCESS GATE
21. REMOVABLE BOLLARDS
23. 12' STABILIZED DECOMPOSED GRANITE ACCESS ROAD
24. SHRUBS AND GROUNDCOVER FROM APPROVED LIST
25. PLAY AREA 4,700 S.F.
26. SPORTS FIELD LIGHTING - APPROXIMATE LOCATION
27. SPORTS COURT LIGHTING - APPROXIMATE LOCATION

---20--- LIGHT CONTOUR - REPRESENTS APPROXIMATE INITIAL ILLUMINATION LEVEL EXPRESSED IN HORIZONTAL FOOT CANDLES. 30 FOOT CANDLE ILLUMINATION AVERAGE REQUIRED FOR SOCCER FIELD AREA OF PLAY.

○ 0.82 LIGHT LEVEL - REPRESENTS APPROXIMATE INITIAL ILLUMINATION LEVEL EXPRESSED IN MAXIMUM FOOT CANDLES. ILLUMINATION LEVELS WOULD DECREASE BY APPROXIMATELY 20% AFTER ±100 HOURS OF OPERATION DUE TO REDUCED LIGHT OUTPUT. ADDITIONALLY, LIGHTING LEVELS DO NOT REFLECT THE REDUCTION THAT WOULD BE ACHIEVED WITH PROPOSED LANDSCAPE BUFFER, AND PROPER USE AND SELECTION OF FIXTURE COMPONENTS AND SHIELDING ACCESSORIES.

PHOTOMETRIC ANALYSIS PROVIDED BY MUSCO LIGHTING.



LOCATION MAP

0 50 100 200 Feet

December 3, 2003

Exhibit 3-2

Table 3-1
Sports Fields Spill Light Levels (Footcandles)

Light Levels	Northern Park Property Boundary		Via Socorro Western Right-of-Way		All Boundaries	
	Maximum (glare)	Horizontal (spill)	Maximum (glare)	Horizontal (spill)	Maximum (glare)	Horizontal (spill)
Average	1.18	0.57	0.62	0.20	0.68	0.26
Maximum	3.48	2.06	1.37	0.77	3.48	2.06
Minimum	0.15	0.02	0.15	0.02	0.06	0.01

Source: Musco Lighting, November 21, 2003.

The City of San Clemente does not maintain specific standards for sports lighting regarding maximum spill and glare measurements. However, City of San Clemente Municipal Code Section 17.24.130, *Lighting*, requires exterior lighting to be shielded or recessed so that direct glare and reflections are contained within the boundaries of the parcel and directed downward away from adjoining properties and public rights-of-way. A typical residential streetlight would operate at an average of 3.00 to 5.00 footcandles.[2] In comparison, the proposed sport lighting at maximum spill and glare levels (2.06 and 3.48 footcandles, respectively) would result in light levels similar to a typical residential streetlight. Maximum spill and glare levels at the Via Socorro western right-of-way (0.77 and 1.37 footcandles, respectively) would be substantially less than light levels of a typical residential streetlight, as are currently located on Via Socorro along the extent of the Sports Park site. Additionally, these maximum light levels would be reduced by 20 percent after approximately 100 hours of operation (i.e., maintained illumination), further reducing light and glare impacts.

The lighting design specifications for the proposed sports fields include various features, which minimize glare and light spillover to adjacent areas including the following:

- Placement of light poles such that lighting levels required by the athletic organization specifications are met, while effects on adjacent uses are minimized;
- Use of the latest technology in fixture photometry (light distribution characteristics);
- The aiming arc would be no less than 28 degrees below a horizontal line of the light source; and
- Design specifications, which require fixtures that meet the highest level of glare control in the sports field lighting industry (i.e., Total Lighting Control (TLC) system).

The effects of potential light and glare resulting from Master Plan implementation would be further minimized by the proper use and selection of fixture components (i.e., reflectors, refractors, lenses, or louvers), and the proper use and selection of shielding accessories (i.e.,

[2] Michael Marchetti, Musco Lighting, November 25, 2003.

the sharp cut-off type). The Marblehead Coastal Specific Plan's Design Guidelines (Section 303 II E) include the provision for the use of "decorative fixtures with shields to direct light downward for overhead lighting." In addition, a landscape buffer is proposed along the western boundary of the Sports Park, reducing effects of the new light and glare associated with the sports fields. A lighting curfew may also be established for the sports fields, as a part of the CUP process.

Overall, lighting shall be designed and installed such that it is directed downward away from adjoining properties and public rights-of-way, does not spill out significantly onto adjacent areas and still maintains the ambience of the area, while not reducing the safety of the users. Compliance with the City of San Clemente Municipal Code and applicable criteria will be ensured through the development of a project-specific design based upon the final site plan, which must be approved by the City Engineer. In addition to this requirement, other features of the lighting plan and design include the following:

- After installation, the lighting equipment shall be tested, adjusted and monitored to ensure that the proper levels of light and glare have been achieved to the satisfaction of the City Engineer.

- A maximum and minimum lighting power switching facility shall be installed and will include the capability of shutting the lighting off when the soccer fields are not in use.

- All sports lighting shall be turned off by 10:00 p.m., seven days a week.

3.12 Biological Resources

Implementation of the proposed Master Plan would reduce turf areas at Pico Park (Lot F) and Trident Canyon Park (lot N), providing additional coastal sage scrub habitat within the project site. Specifically, an additional 0.32 acres of coastal sage scrub habitat would be restored. The proposed refinements to the parks and trails facilities of the Marblehead Coastal Project would result in beneficial impacts when compared to the previously approved plan. In addition, comprehensive habitat preservation, restoration and creation of preserved enhanced and created habitat would continue to occur as analyzed under Final EIR 95-01 and subsequent Addendums to the EIR. Therefore, no additional significant biological impacts or additional mitigation measures would be required with implementation of the Master Plan.

3.13 Recreation

The Master Plan represents a refinement of the parks and trails facilities and details the proposed parks' and trails' amenities packages. Specifically, the project proposes extension and realignment of the Sports Park access road, reduction of the turf area at Pico Park and Trident Canyon Park and redesignation of proposed public space to private open space in East Branch Park and Coastal Sage Scrub Habitat. Section 2.0, *Description of the Proposed Project*, outlines the amenities proposed at each location.

City of San Clemente Municipal Code Section 16.36.070, *Park and Recreational Facilities*, requires land dedication and/or the payment of park fees to satisfy the park code requirement of

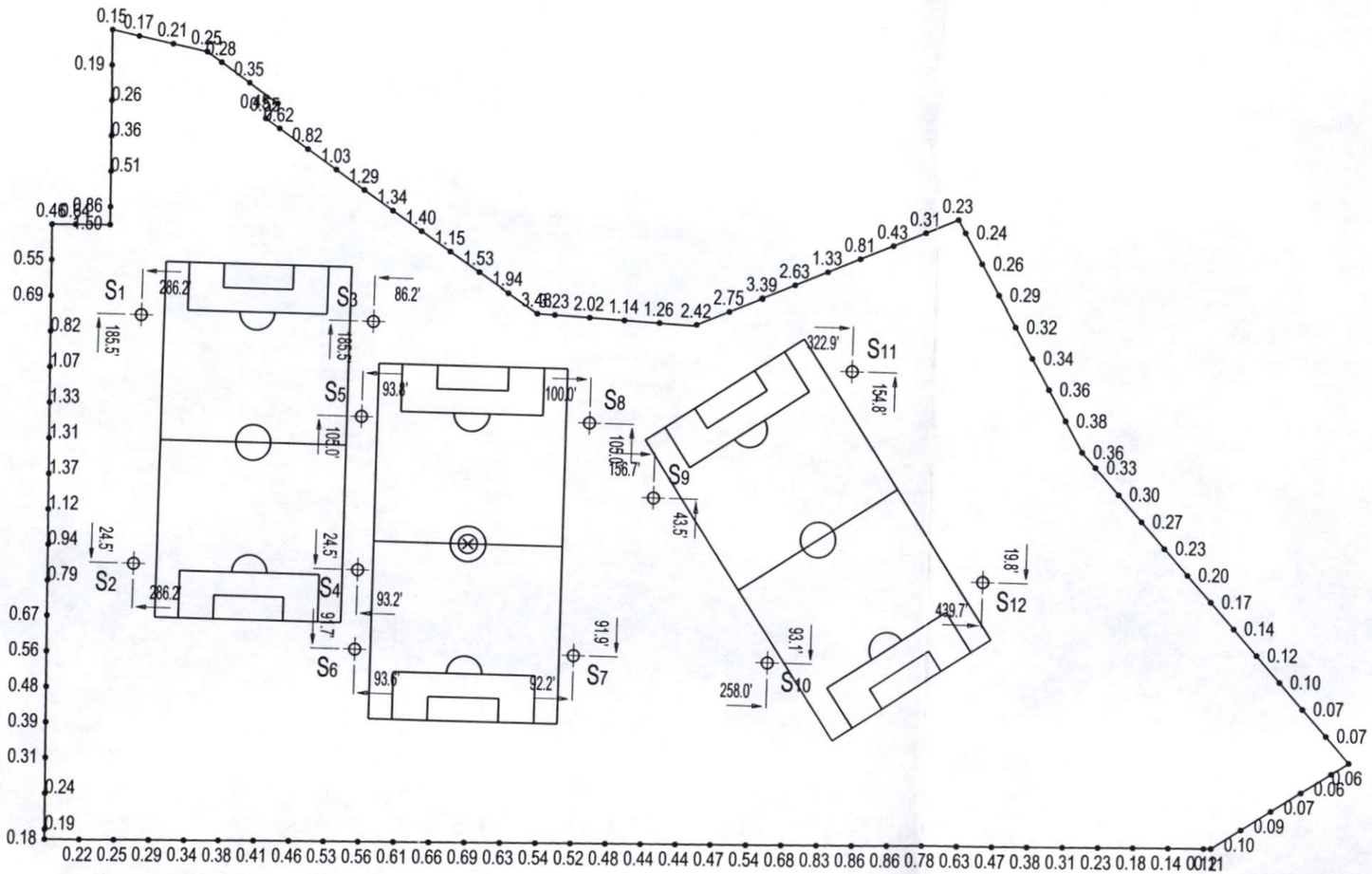
5 acres per 1,000 residents imposed on residential development in San Clemente. Based on this requirement, the revised project would require the dedication of 4.4 acres of parkland and/or the payment of in lieu park fees. The project proposes 12.84 acres of Ocean View Park of which 3.54 acres (including 3.22 acres of Applicant-improved park area) would be developed by the Applicant (or designee) to be owned and maintained by the City of San Clemente. The remaining 9.30 acres (including 0.96 acres of improved park area) would be privately restored or improved, and then owned and maintained through the Homeowners Associations or a non-profit entity. Additionally, the project proposes development and dedication of the Sports Park (8.72 acres) and various trails throughout the project site. The Marblehead Coastal Project would provide a total of 12.26 acres of improved park facilities and dedicated parkland to San Clemente's Park System. No change to conclusions rendered in Final EIR 95-01 and subsequent Addendums to the EIR for the project would result.

CHAPTER 4.0
APPENDICES

Appendix 4.1
Musco Lighting Study

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

INITIAL SPILL LIGHT
MAXIMUM FOOTCANDLES

Target Points:	115
Average:	0.68
Maximum:	3.48
Minimum:	0.06
Avg/Min:	11.596
Max/Min:	59.810

Number of Luminaires:	84
* KW Consumption:	134.40
**Average Tilt Factor:	0.946
***Recoverable Light Loss Factors: x	1.000
Total Light Loss Factor(LLF)	0.946

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

*** Includes Luminaire Dirt Depreciation and Lamp Lumen Depreciation - per IESNA Lighting Handbook 9th Edition, page 9-17.

NOTE: Light level averages and uniformities are guaranteed by MUSCO. However, individual location measurements may vary from computer predictions.

INSTALLATION REQUIREMENTS:
Results assume +-3% nominal voltage at load side of ballast box and poles located within 3 feet of design locations.

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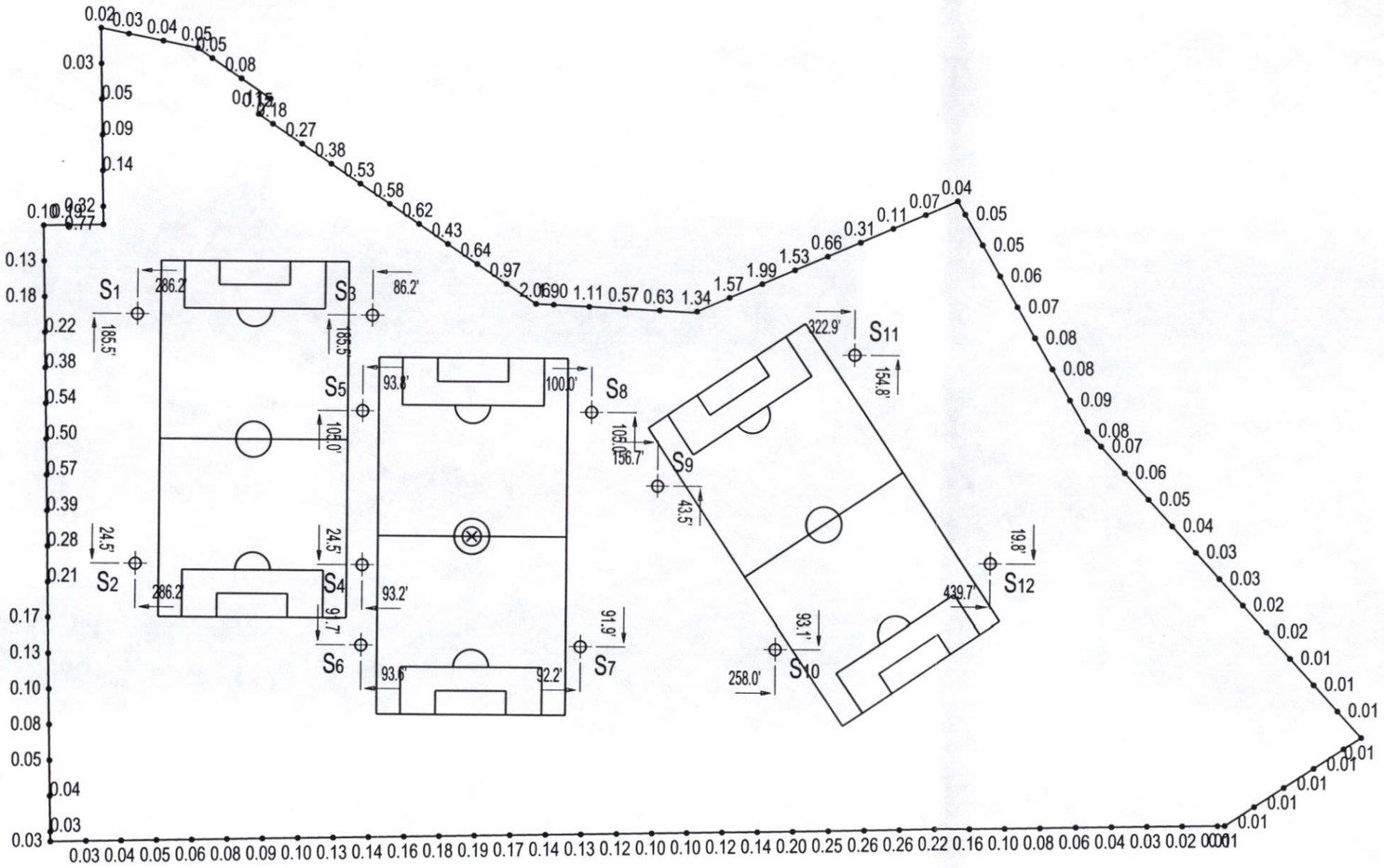
⊕ = Pole Location

SCALE IN FEET
0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

INITIAL SPILL LIGHT
HORIZONTAL FOOTCANDLES

Target Points:	115
Average:	0.26
Maximum:	2.06
Minimum:	0.01
Avg/Min:	40.588
Max/Min:	324.292

Number of Luminaires:	84
* KW Consumption:	134.40
**Average Tilt Factor:	0.946
***Recoverable Light Loss Factors: x	1.000
Total Light Loss Factor(LLF)	0.946

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

*** Includes Luminaire Dirt Depreciation and Lamp Lumen Depreciation - per IESNA Lighting Handbook 9th Edition, page 9-17.

NOTE: Light level averages and uniformities are guaranteed by MUSCO. However, individual location measurements may vary from computer predictions.

INSTALLATION REQUIREMENTS:
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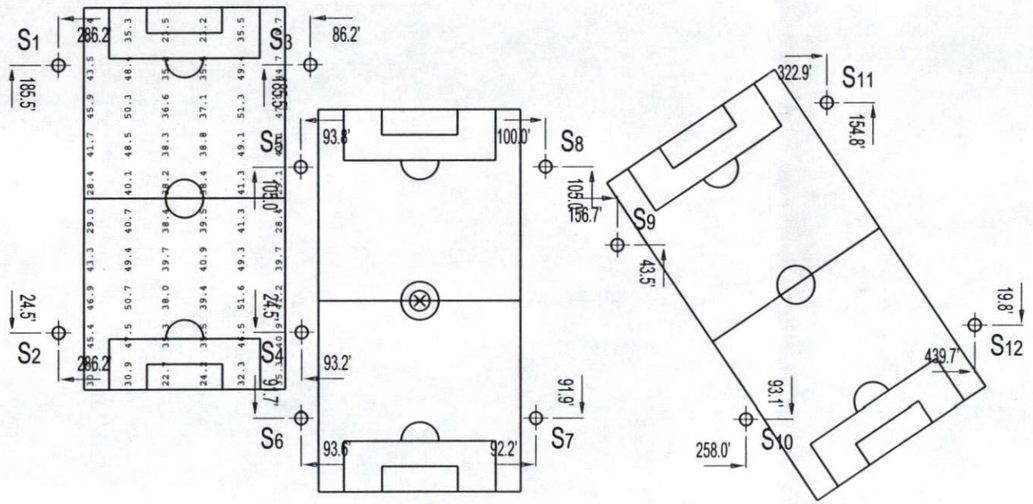
⊕ = Pole Location

SCALE IN FEET
0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

INITIAL ILLUMINATION
SOCCER
HORIZONTAL FOOTCANDLES
ON PLANE AT Z= 3

Target Points:	60
Average:	39.23
Maximum:	51.59
Minimum:	22.69
Avg/Min:	1.729
Max/Min:	2.273
UG (Adj pts)	1.556
CV:	0.193

Number of Luminaires:	28
* KW Consumption:	134.40
**Average Tilt Factor:	0.951
***Recoverable Light Loss Factors: x	1.000
Total Light Loss Factor(LLF)	0.951

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

*** Includes Luminaire Dirt Depreciation and Lamp Lumen Depreciation - per IESNA Lighting Handbook 9th Edition, page 9-17.

NOTE: Light level averages and uniformities are guaranteed by MUSCO. However, individual location measurements may vary from computer predictions.

INSTALLATION REQUIREMENTS:
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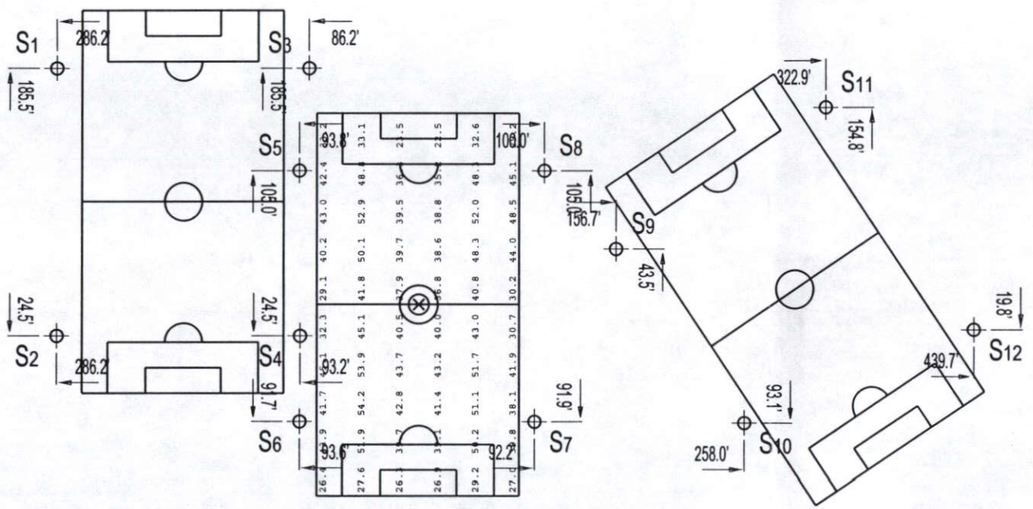
⊕ = Pole Location

SCALE IN FEET
0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

INITIAL ILLUMINATION
SOCCER
HORIZONTAL FOOTCANDLES
ON PLANE AT Z= 3

Target Points:	60
Average:	39.85
Maximum:	54.20
Minimum:	22.53
Avg/Min:	1.768
Max/Min:	2.405
UG (Adj pts)	1.884
CV:	0.206
Number of Luminaires:	28
* KW Consumption:	134.40
**Average Tilt Factor:	0.939
***Recoverable Light Loss Factors: x	1.000
Total Light Loss Factor(LLF)	0.939

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

*** Includes Luminaire Dirt Depreciation and Lamp Lumen Depreciation - per IESNA Lighting Handbook 9th Edition, page 9-17.

NOTE: Light level averages and uniformities are guaranteed by MUSCO. However, individual location measurements may vary from computer predictions.

INSTALLATION REQUIREMENTS:
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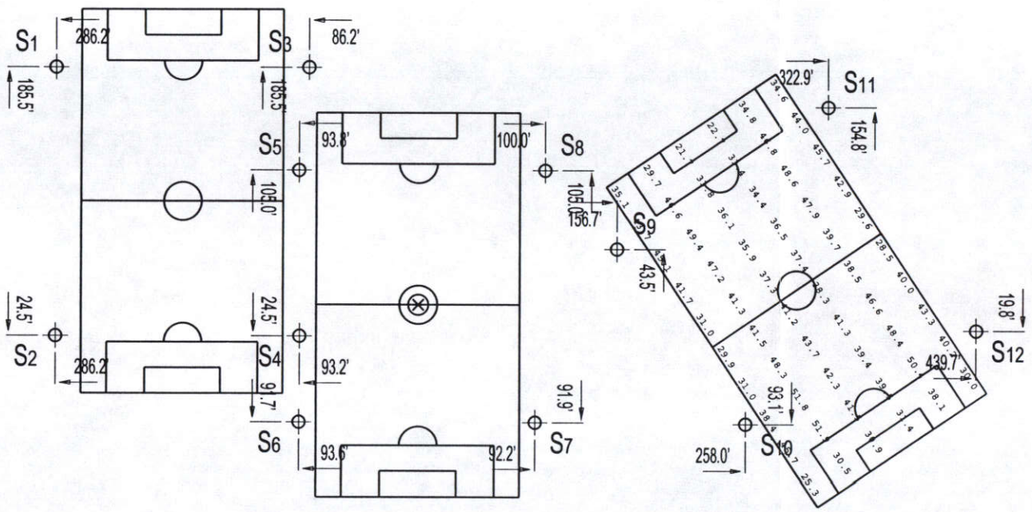
⊕ = Pole Location

SCALE IN FEET

0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

INITIAL ILLUMINATION
SOCCER
HORIZONTAL FOOTCANDLES
ON PLANE AT Z= 3

Target Points:	60
Average:	39.03
Maximum:	51.89
Minimum:	21.66
Avg/Min:	1.802
Max/Min:	2.396
UG (Adj pts)	1.807
CV:	0.185

Number of Luminaires:	28
* KW Consumption:	134.40
**Average Tilt Factor:	0.947
***Recoverable Light Loss Factors: x	1.000
Total Light Loss Factor(LLF)	0.947

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

*** Includes Luminaire Dirt Depreciation and Lamp Lumen Depreciation - per IESNA Lighting Handbook 9th Edition, page 9-17.

NOTE: Light level averages and uniformities are guaranteed by MUSCO. However, individual location measurements may vary from computer predictions.

INSTALLATION REQUIREMENTS:
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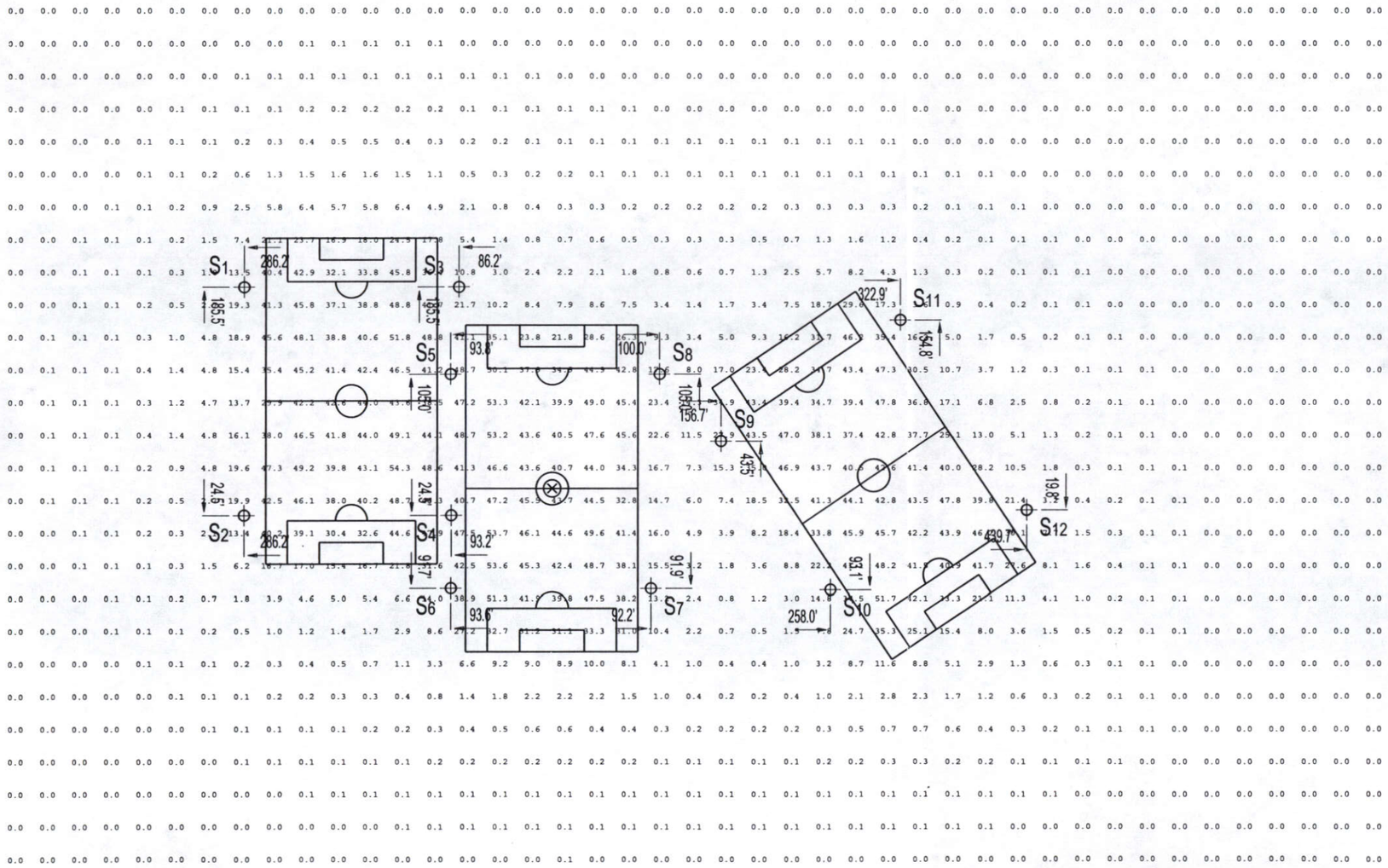
⊕ = Pole Location

SCALE IN FEET
0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

INITIAL ILLUMINATION
Custom
HORIZONTAL FOOTCANDLES
ON PLANE AT Z= 0

Target Points:	1161
Average:	7.45
Maximum:	54.27
Minimum:	0.00
Avg/Min:	3985.948
Max/Min:	29022.200
UG (Adj pts)	12.747
CV:	1.983

Number of Luminaires:	84
* KW Consumption:	134.40
**Average Tilt Factor:	0.946
***Recoverable Light Loss Factors: x	1.000
Total Light Loss Factor(LLF)	0.946

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

*** Includes Luminaire Dirt Depreciation and Lamp Lumen Depreciation - per IESNA Lighting Handbook 9th Edition, page 9-17.

NOTE: Light level averages and uniformities are guaranteed by MUSCO. However, individual location measurements may vary from computer predictions.

INSTALLATION REQUIREMENTS:
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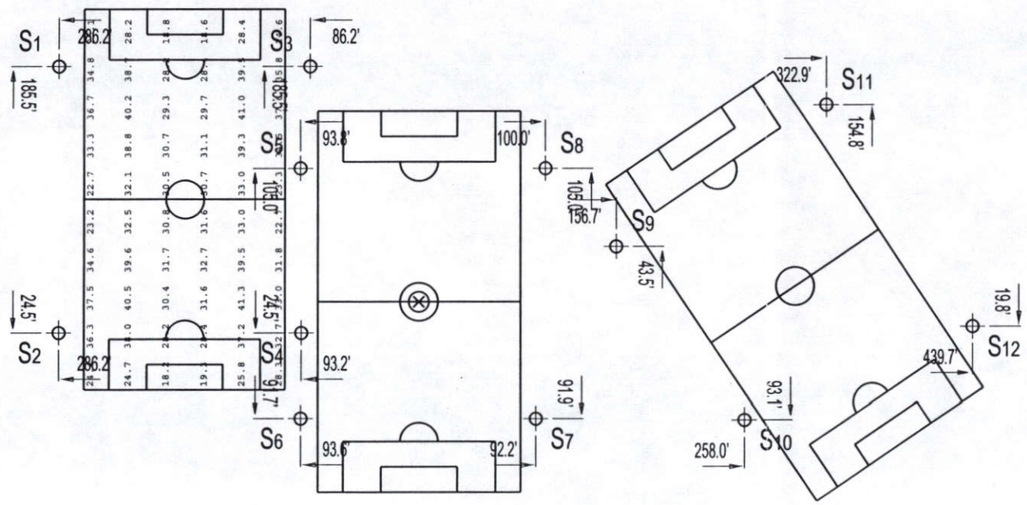
⊕ = Pole Location

SCALE IN FEET
0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

MAINTAINED ILLUMINATION
SOCCER
HORIZONTAL FOOTCANDLES
ON PLANE AT Z= 3

Target Points:	60
Average:	31.39
Maximum:	41.27
Minimum:	18.16
Avg/Min:	1.729
Max/Min:	2.273
UG (Adj pts)	1.556
CV:	0.193

Number of Luminaires:	28
* KW Consumption:	134.40
**Average Tilt Factor:	0.951
***Recoverable Light Loss Factors: x	0.800
Total Light Loss Factor(LLF)	0.761

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

*** Includes Luminaire Dirt Depreciation and Lamp Lumen Depreciation - per IESNA Lighting Handbook 9th Edition, page 9-17.

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INSTALLATION REQUIREMENTS:
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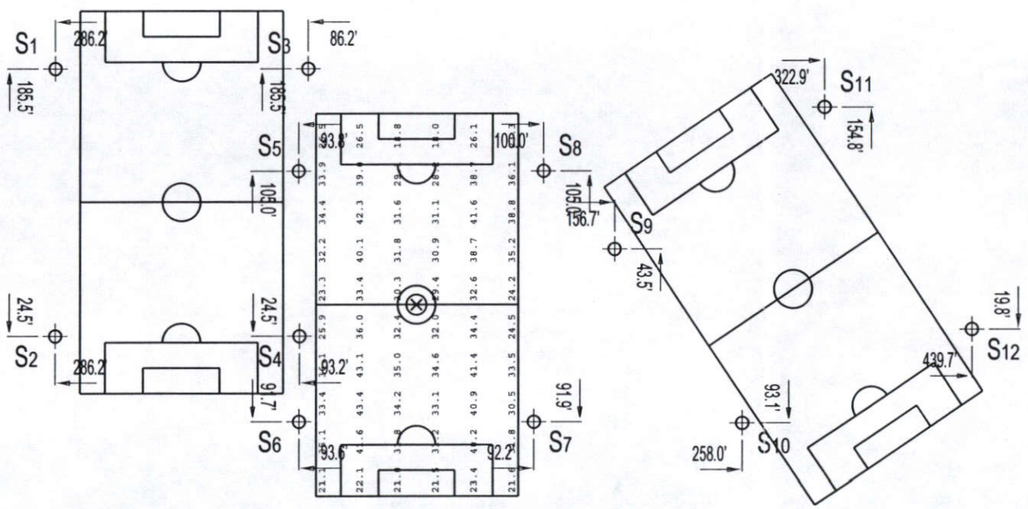
⊕ = Pole Location

SCALE IN FEET
0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

MAINTAINED ILLUMINATION
SOCCER
HORIZONTAL FOOTCANDLES
ON PLANE AT Z= 3

Target Points:	60
Average:	31.88
Maximum:	43.36
Minimum:	18.03
Avg/Min:	1.768
Max/Min:	2.405
UG (Adj pts)	1.884
CV:	0.206

Number of Luminaires:	28
* KW Consumption:	134.40
**Average Tilt Factor:	0.939
***Recoverable Light Loss Factors: x	0.800
Total Light Loss Factor(LLF)	0.751

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

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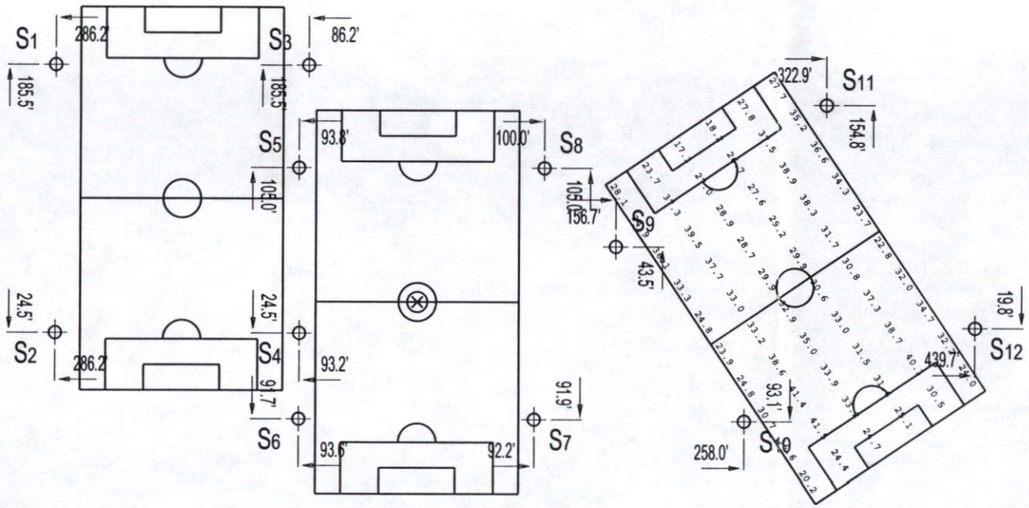
⊕ = Pole Location

SCALE IN FEET
0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type:	TLC MZ
Lamp Type:	1500W MZ
Lumens:	155000
File # / Date:	106327 / 20-Nov-2003
Prepared By:	MBELLOMA

MUSCO®
GUARANTEED PERFORMANCE

MAINTAINED ILLUMINATION
SOCCER
HORIZONTAL FOOTCANDLES
ON PLANE AT Z= 3

Target Points:	60
Average:	31.23
Maximum:	41.51
Minimum:	17.33
Avg/Min:	1.802
Max/Min:	2.396
UG (Adj pts)	1.807
CV:	0.185

Number of Luminaires:	28
* KW Consumption:	134.40
**Average Tilt Factor:	0.947
***Recoverable Light Loss Factors: x	0.800
Total Light Loss Factor(LLF)	0.757

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

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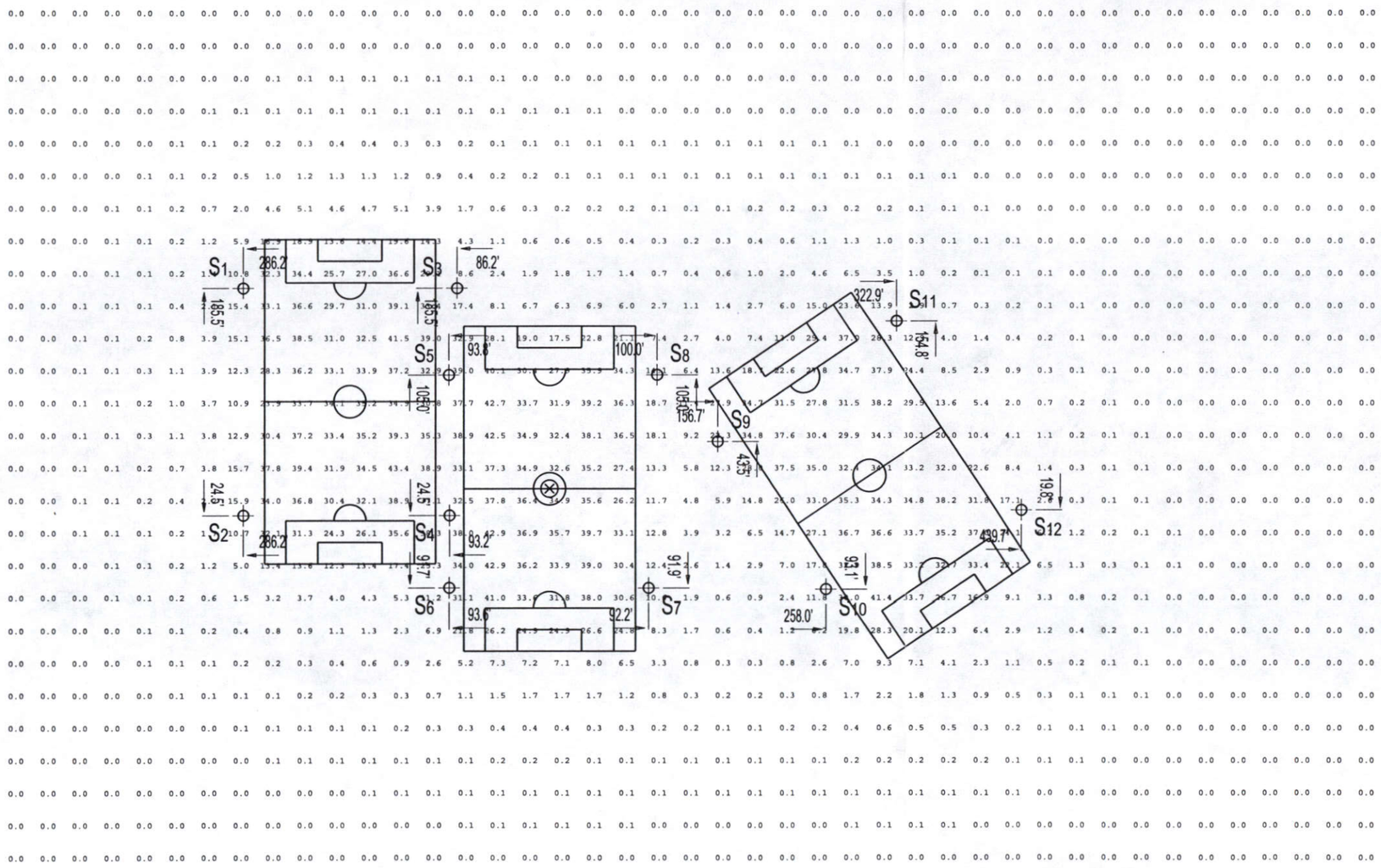
⊕ = Pole Location

SCALE IN FEET

0 120 240

MARBLEHEAD COSTAL SPORTS PARK
SAN CLEMENTE, CA

EQUIPMENT LISTING						
Pole count	Pole location	Mounting height	Pole size	Elev.	Fixt. /unit	Kilow /unit
12	S1-S12	70'	70'	0'	7	11.2



Pole location dimensions are relative to 0,0 reference point ⊗.

Fixture Type: TLC MZ
Lamp Type: 1500W MZ
Lumens: 155000
File # / Date: 106327 / 20-Nov-2003
Prepared By: MBELLOMA

MUSCO
GUARANTEED PERFORMANCE

MAINTAINED ILLUMINATION
Custom
HORIZONTAL FOOTCANDLES
ON PLANE AT Z= 0

Target Points:	1161
Average:	5.96
Maximum:	43.41
Minimum:	0.00
Avg/Min:	3985.940
Max/Min:	29022.200
UG (Adj pts)	12.747
CV:	1.983

Number of Luminaires:	84
* KW Consumption:	134.40
**Average Tilt Factor:	0.946
***Recoverable Light Loss Factors: x	0.800
Total Light Loss Factor(LLF)	0.757

*Refer to amperage draw for electrical sizing.

** Additional non-recoverable Light Loss Factors are design constants equal to 1.0 at maintained illumination levels.

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⊕ = Pole Location

SCALE IN FEET

0 120 240